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Soil and Water. Conservation News

United States Department of Agriculture
Soil Conservation Service

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Comments: From the SCS Chief

Strengthening Our Administrative Support

Just as the Soil Conservation Service is looking for the best and most cost-effective conservation systems to aid farmers and ranchers, we are also looking for the best and most cost-effective ways to run the agency's administrative operations.

To do this we are planning to consolidate portions of SCS administrative staffs now operating in 54 different locations in the States, Caribbean Area, and Washington, DC. The change will affect personnel management, contracting and procurement, fiscal operations, accounting, budgeting, and other administrative activities.

In planning the consolidation, SCS has a good opportunity to look closely at how and why we do things. The result can be to change or eliminate administrative activities where needed, reduce paperwork, and get the job done more efficiently. We want to maximize the use of new technologies such as electronic mail and computers to improve communications and automate functions.

Helping with the agency's self-evaluation is a workgroup of 125 field, State, and National Headquarters employees. The workgroup met here in November and divided into 22 subgroups to concentrate on specific administrative areas. The groups submitted their reports in January and they are being summarized.

The groups made many good suggestions that will be used as SCS decides on the size, number, and location of its future administrative staffs.

Be assured that any consolidation of functions will be done in the best interests of the SCS and not just to say, "We have consolidated."

Our bottom line is putting cost-effective conservation on the land. By becoming more efficient administrators we will continue to provide adequate, high-quality conservation assistance to the Nation's farmers, ranchers, and other landowners.



Cover: Peter J. Fortune, a teacher at Weston Elementary School, Greenfield, IN, helps his students explore the life of a pond under a microscope. He won the First Place National Conservation Teacher Award in the National Association of Conservation Districts and Allis-Chalmers Conservation Education Awards Program. See conservation education articles beginning on page 3. (Photo by Gene Alexander, audiovisual specialist, National Technical Center, SCS, Ft. Worth, TX.)

John R. Block
Secretary of Agriculture

Peter C. Myers, Chief
Soil Conservation Service

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Conservation Education

Conservation Education Winners

The National Association of Conservation Districts (NACD) and Allis-Chalmers Corporation have announced the winners of their 1984 Conservation Education Awards Program. The program is open each year to full-time teachers in grades K-12 in the United States and its territories and to the Nation's 2,950 soil and water conservation districts. The purpose of the contest is to emphasize the value of conservation education in the schools and to recognize the most outstanding conservation education programs developed by teachers and conservation districts across the Nation.

Winning Teachers

"Why is this fish dead?" Even the floating body of a fish is a take-off for nature study in the outdoor classroom created by Peter J. Fortune and his students at Weston Elementary School in Greenfield, IN. Fortune won the First Place National Conservation Teacher Award in the NACD/Allis-Chalmers Conservation Education Awards Program.

During 1983, Fortune and his students transformed a small school courtyard into a diverse natural environment which serves as a teaching tool for all the teachers and students in the school.

The rectangular area is packed corner to corner. It holds a pond, woodland, wildflower and prairie plots, an herb garden, agricultural plot, nesting boxes, sundial, and ground water monitoring hole. Every aspect of the plot involved work by the children.

"Do animals really like this stuff?" asks a student who is looking at some grain through a microscope. "Why don't some seeds sprout?" is a live puzzle for children who are working on getting prairie flower seeds to live in their plot. Planting winter wheat and harvesting soybeans

help students understand the basics of agriculture. A computer is used to track information on food chains.

Based on their outdoor lab experience, Fortune's students reach out into the community with displays and projects. Other schools are visiting Weston Elementary for ideas on how to create their own labs. "Nature is really one huge team, of which we are all members being affected by one another's actions," says Fortune. "This program's emphasis on stewardship of natural resources will live forever through its children."

Fortune will receive \$1,000 and an all-expense paid trip to the 1985 NACD National Convention in February in Honolulu, HI.

"Soil Erosion Meets Its Doom," a comic melodrama acted by students of Burlington Middle School teacher Jeffrey C. Keidel, is just one lively element of Keidel's conservation education program in Burlington, CO. Keidel won the Second Place National Conservation Teacher Award in the NACD/Allis-Chalmers Conservation Education Awards Program.

An "Animal of the Week" series in Keidel's program helps fifth graders learn about creatures ranging from the ring-necked pheasant to the meadowlark. A "Critter Corner" gives experiences with

live pets. And study of soils, food chains, and prairie organisms are followed up by taking a "census" of the soil community and constructing food chain mobiles. Investigating decay rates in trash gives students a fresh idea of what happens after food leaves the table.

In the sixth grade, Keidel's students interview local residents about Dust Bowl days, focus on "the ecology problem of the week," and dig deeper into study of actual soil and water conservation techniques on local farms.

A "Nature Nuts" club involves both grades in outside activities. The Nuts constructed more than 20 scrap boxes and organized a recycling drive in their school. And other areas of study get brought into conservation education as well. Writing a "Declaration of Interdependence" involved study of U.S. history in connection with ecological principles, for example.

"As I share nature with my students, they share new insights and enthusiasm with me," says Keidel. "Together the conservation message is carried on."

Keidel will receive a \$500 cash award and an invitation to attend the 1985 NACD National Convention.

Regional winners in the conservation teacher category are: Pacific region,



Peter Fortune and his students tell time by the sun using a sundial they built in their outdoor classroom.

Photo, Gene Alexander, audiovisual specialist, SCS, Ft. Worth, TX

Deborah Freeman, Main School, Fairbanks, AK; Northern Plains region, Lee Holmer, Florence Carlton Schools, Florence, MT; South Central region, Jo Cazes, Trafton Academy, Baton Rouge, LA; Northeastern region, Paul Siegrist, Calhoun County High, Grantsville, WV; and Southeastern region, Ferrell Bridwell, The Horticulture Center, Greer, SC.

Winning Districts

What's in a jar of "organically active soil"? Students in the classroom programs led by New Jersey's Ocean County Soil and Water Conservation District are learning fast about all the microscopic creatures that help soil be a good place for growing plants. The Ocean County District won the First Place National District Award in the NACD/Allis-Chalmers Conservation Education Awards Program.

Marlena Campbell, education associate for the conservation district, has a bundle of action-oriented lessons ready to take out to schools. Team hunts for objects that are "velvety," "brittle," or "scratchy" help young children sharpen their senses. Older students learn to use a compass, figure out what the parts of a tree do, and test different soils for their capabilities.

"Teaching teachers" is central if ideas are going to be carried over into the rest of the school year. So the district holds multidisciplinary workshops at regular intervals, taking teachers outside to analyze soils and try the other activities their students will test.

Reaching potential teachers is also on the district agenda. Working with Georgian Court College, the district led graduate students in a wildlife population dynamics game and other outdoor activities. Math and language skills can be reinforced by getting students involved in environmental projects that demand they measure, write, and talk. So the district took some examples of that to juniors enrolled in elementary education at the college.

Conservation tours for officials, Saturday morning programs at a lumber store, and exhibits in the shopping mall reach

out to the public with the conservation story. Have a good idea for a conservation bumper sticker? Save it for the Ocean County District's bumper sticker contest.

Getting students involved in solving a real community problem is a sure-fire way to add field experience to education—and help get the problem fixed. The Columbia Soil and Water Conservation District has a knack for working with students, and this past year brought them in to help with a major research project aimed at stopping massive soil erosion on some of Oregon's farmland. The Columbia District won the National Second Place Award in the Conservation Education Awards Program.

The problem those students helped attack was real. On Fred Luttrell's farm in the district, one field was losing soil at the dramatic rate of 160 tons per acre—more than 100 times the amount that scientists estimate such a field can sustain without losing its capability in the long run. The problem was a deep layer of compacted soil that kept rain from soaking in. The possible solution? Drainage tiles that would carry the water off.

But to be sure that the solution worked, measurements needed to be made of how much water passed through the system. So the district set up a cooperative agreement with an Oregon State University soil scientist and students to help with the spade work and the measurements. The result? A scientific experiment that will tell whether the method works well enough to apply on other lands with the same problems. For now, the project has become an active demonstration site for other farmers, schools, government officials, and the public.

That project is only one aspect of the district's conservation education thrust. Workshops for teachers on how to develop outdoor classrooms, classes for students on careers in resource management, donation of conservation cartoon booklets to elementary schools, and programs for youth groups round out the district program.

Each of the two top district winners will receive a plaque to recognize their

achievements in conservation education at the NACD National Convention. The two conservation districts were among seven regional winners who competed for top honors in the national awards program.

Other regional winners are: Southeastern region, Mobile County Soil and Water Conservation District, Mobile, AL; South Central region, Capital Soil and Water Conservation District, Denham Springs, LA; North Central region, Effingham County Soil and Water Conservation District, Effingham, IL; Northern Plains region, Douglas County Conservation District, Lawrence, KS; and Southwestern region, Douglas County Conservation District, Castle Rock, CO.

Sara Ebenreck,
director of communications, National Association of
Conservation Districts, Washington, DC

Community College Course Boosts Resource Conservation District

The Santa Cruz County Resource Conservation District (RCD) in central coastal California is stimulating public interest in its programs, attracting volunteers, and forging ties with the local education system through its soil erosion course. "Soil Conservation" has been taught at Cabrillo Community College in Aptos since 1981.

"It's a great way to reach people without having to do all the work ourselves," said Chris Hirsch, Santa Cruz County RCD education consultant who helped develop the course. The community college advertises the course, provides a room and audiovisual equipment, and pays a teaching fee to the RCD. The course is a popular elective for students pursuing Cabrillo's associate in science degree in horticulture. It also attracts professional landscapers, contractors, and government planners.

"We usually have at least one student from a private road association who takes the information back to his or her group, which could be as many as 50 people,"

said Hirsch. "It's one of the most cost-effective ways of getting the word out."

"This class has opened channels of communication we might never have opened otherwise," said Richard Casale, Soil Conservation Service district conservationist in Aptos. "The Santa Cruz County RCD shares its resources and expertise with Cabrillo regularly, providing background information for horticulture classes, making recommendations for college garden projects, and giving field-work opportunities to students who want to learn about conservation in the real world."

The course is team taught by local experts including RCD directors and staff and the Santa Cruz County Planning Department. Lectures and slide shows cover topics such as preventing erosion on roads and construction sites, vegetation as a means of erosion control on slopes, and streambank erosion control.

The Santa Cruz County RCD has developed a 61-page packet "How to Develop an Erosion Control Training Program" to assist other RCD's in sponsoring erosion control workshops. The packet includes tips and timetables for organizing the course curriculum, bibliographies of teaching materials, sample test questions, and field exercises. A section on advanced erosion control seminars also is included.

Copies of the packet are available for \$8 from the Santa Cruz County Resource Conservation District, 323 Spreckels Drive, Suite A, Aptos, CA 95003.

Lori Perry,
volunteer, SCS, Aptos, CA

Many States Using Wildlife Program

An estimated 10 million students are learning about wildlife this year through Project WILD. This project, which began several years ago as a regional educational effort by 12 Western States, is now being used in 32 States across the Nation.

Project WILD is a collection of approximately 100 activity plans for teaching children through the first 12 grades about the environment and conservation. It strives to develop an appreciation for and an understanding of wildlife and to maintain an unbiased approach toward wildlife management.

The project was jointly developed by the Western Association of Fish and Wildlife Agencies and the Western Regional Environmental Education Council. The activity plans, which were written and field tested by classroom teachers, correspond to an outline of basic concepts worked out by scores of school administrators, resource managers, and conservationists.

The activity plans are published in two manuals, one for elementary school and the other for secondary school. They are intended to supplement classroom work in traditional subjects, and teachers are encouraged to select those activities that best support their other lessons. No particular sequence need be followed.

The activities range from playing simple games and identifying signs of wildlife to assuming adversary roles in an imaginary public hearing on zoning proposals. They are indexed by grade level, academic subjects, skills, and wildlife topics. Most are described and illustrated in two pages and are expected to take from 20 minutes to several 45-minute periods. Some require outdoor settings.

The manuals provide the teacher with a glossary and the outline of basic concepts to which the activities are keyed. The outline includes sections on the awareness and appreciation of wildlife; human values and the wildlife resource; wildlife and ecological systems; wildlife conservation; cultural and social interac-

tion with wildlife; wildlife issues and trends; alternatives and consequences; and wildlife, ecological systems, and responsible human actions.

Wildlife's value to the soil is illustrated by an activity involving compost, earthworms (not always recognized as wildlife), and a quantity of soil that is not particularly rich. Students first conduct simple tests on the soil to determine its texture, permeability, acidity, and content of organic matter. They then divide the soil into three containers and add compost and earthworms to the first container, compost alone to the second, and nothing to the third.

The students observe and occasionally water the soil in the containers for 3 weeks, after which they repeat the original soil tests and discuss the changes that have occurred. They then plant radish seeds in each of the containers and compare the plant growth after another 3 weeks. The first container, in which there is wildlife, should support the best plant growth.

States can participate in Project WILD by becoming associate sponsors. The manuals are distributed to teachers at workshops set up to demonstrate how to conduct the activities. Project officials report that 125,000 copies of the manuals have either been printed or are on order.

Organizational sponsors of Project WILD include the American Humane Association, Canadian Wildlife Federation, Defenders of Wildlife, National Wildlife Federation, and The Wildlife Society. More information can be obtained from Dr. Cheryl Charles, director, Project WILD, Salina Star Route, Boulder CO 80302.

Living Museum at the Ghost Ranch

Ghost Ranch. The name evokes intrigue and interest among Southwest history buffs. Ghosts, however, are not what draws most of the thousands of visitors each year to the Ghost Ranch near Abiquiu, NM. The real attractions are the miniforest, nature trail, and scores of wild animals that make up the living museum on the ranch.

True to its name, the Ghost Ranch harbors many legends. One of the most popular ones has to do with a fight many years ago among wranglers. The dispute ended with a lynching, and it is said that the dead man's ghost haunts the area. Some visitors say they've seen ghosts off in the distance, where multicolored mesas are dotted with pinyon and juniper.

The real story about the ranch, however, has to do with natural resource problems and a desire to teach conservation. It is about the cooperative efforts of the Charles Lathrop Pack Forestry Foundation and several government agencies in making the ranch a showplace of conservation in action and a center of conservation education in the State.

The story began in 1934 when Arthur N. Pack, founder of *Nature* magazine and the American Nature Foundation, acquired title to the 23,000-acre Ghost Ranch. He and his wife gave the entire ranch to the United Presbyterian Church USA for a national conference center in the late 1950's. The Charles Lathrop Pack Forestry Foundation, named after Arthur's father, then leased 12 acres from the church to build the Ghost Ranch Living Museum.

Concerned about the resource problems in the area, Arthur Pack planned to use the museum for conservation education. He teamed up with William H. Carr, a pioneer in outdoor conservation education, and the museum was opened to the public in 1959. Its purpose was to encourage an appreciation of nature, point out the interdependency of all elements in the environment, and show the consequences if natural resources are overused or abused.

In 1961, USDA's Forest Service joined forces with the museum and established the Beaver National Forest, the smallest national forest in America. This miniforest, which covers 2 acres of the ranch, is a microcosm of northern New Mexico forests. It reflects the multiple-use concept of all national forests and includes a variety of living trees and other plants, a running brook, and scale models of livestock, people, and a windmill.

One of the most popular exhibits at the Ghost Ranch Museum is a wildlife zoo. Here visitors can see mountain lions, black bears, bobcats, wolves, mule deer, antelope, raccoons, skunks, golden eagles, hawks, and other animals from the area. The Ghost Ranch hopes to safeguard the future for threatened species like the Mexican wolf and the mountain lion.

Another exhibit—the Soil and Water Conservation Exposition—was dedicated in 1965 by USDA's Soil Conservation Service and the Coyote-Canones Soil and Water Conservation District (SWCD). This exhibit was designed to provide a better understanding of the soil and to demonstrate practices that can be used to stop erosion and conserve soil, water, and vegetation.

Improvements in the soil and water conservation exhibit are made annually

by the SCS, Forest Service, and East Rio Arriba (formerly Coyote-Canones) SWCD. What began as a few simple grass plots evolved into a 3-acre Walkabout Watershed with a nature trail. The trail begins with a diorama that in three sections shows past, present, and possible future land uses and conditions in the area. The diorama, which is housed in a building provided jointly by SCS and the Forest Service, emphasizes soil erosion and its control. The trail goes past plant identification sites and erosion control structures, provides information on soil formation, and ends back at the diorama.

The entire exposition is built around an arroyo, or gully, which was 75 feet wide and 600 feet long before log and earthen dams were installed to control the erosion. "The erosion control structures have served their purpose well," said Jerry Dutchover, local SCS district conservationist. "Instead of showing problems and solutions, now we're mainly showing the benefits of conservation practices."

In 1970, the museum began to serve also as the visitor center of the Carson National Forest. At that time, the Forest Service began to maintain the entire facility and to keep a staff year round to answer visitors' questions and conduct



Ted Bency, who served as a guide for the Walkabout Watershed, points out various plants to students as he explains the role of plants in soil and water conservation at the Ghost Ranch.

tours. Additional help comes from local citizens, the Young Adult Conservation Corps and Senior Employment Programs, and colleges and universities.

SCS provides a guide during the peak summer months to conduct interpretive tours of the Walkabout Watershed. Ted Bency, a science teacher from a nearby junior high school, served as SCS guide for 9 years. Bency said, "The exhibits are our classrooms, of course, but watching SCS and the Forest Service work together to conserve natural resources is an education in itself for our visitors."

Before scheduling field trips to the museum, Forest Service and SCS guides visit the schools and present lectures on conservation, using slide shows, publications, and some of the smaller zoo animals. The children are then better prepared to understand the nature trail and the exhibits when they visit the museum.

The number of visitors to the Ghost Ranch has increased steadily over the years. The 2-year total for 1982-83 was 104,880. Visitors have come from nearly every State and from almost every continent. Most come with youth, senior citizen, religious, civic, or academic groups. Many commercial tours of northern New Mexico also stop at the museum. The facilities are free and open to the public every day from Memorial Day to Labor Day and 6 days a week the rest of the year.

Many visitors walk across the open range from the Presbyterian Conference Center, which is also open year round. Center officials work with SCS and the local conservation district on a conservation plan developed for the ranch. They lease the ranch to area ranchers during winter months for grazing.

The trustees of the museum are seeking to make it more effective in teaching conservation by actively promoting it. Historically, operations have been financed by the foundation, private contributions, and input from the agencies. Now, a fund has been established to help finance a major 5-year expansion that will include physical improvement of the facility, a new nature trail between the museum and the conference center, and new enclosures for the

animals. A consulting firm has developed plans for the improvements, and the Forest Service has completed an environmental assessment. "We will have all of our plans on the shelf to begin work as soon as the money becomes available," said Albert Martinez, museum director.

Cofounder Arthur Pack died in 1975, but his dream lives on—in the trees, grass, and animals of the Ghost Ranch Living Museum and in the visitors who stop by thinking all they will see are ghosts.

Betty Joubert,
public affairs specialist, SCS, Albuquerque, NM

Districts Develop Conservation Course

Elementary school teachers in North Carolina can take a short course in conservation as part of their professional recertification. The course, which is entitled "Soil and Water for Elementary Teachers," provides one Continuing Education Unit for 10 hours of study.

Instructional material for the course was developed by the North Carolina Association of Soil and Water Conservation Districts in consultation with curriculum planners and conservation agencies. Local conservation districts coordinate the workshops at colleges and universities across the State.

During 1984, at least 13 districts in the State were involved in the workshops. The association encourages districts in which there is no college or university to sponsor the attendance of a local teacher to a workshop.

Thus far the course has been offered at the University of North Carolina, Charlotte; the University of North Carolina, Wilmington; Western Carolina University; North Carolina Central University; and numerous community colleges. The association hopes the course will eventually be offered in all of the State's community colleges, according to Hugh D. Randall, chairman of the education committee that distributed the course material.

Students Compete in Environmental "Olympics"

Six high school teams participated in Pennsylvania's first statewide environmental "olympics." The teams competed in five areas—aquatics, forestry, soil, wildlife, and outdoor skills.

The 1984 "Enviro-Lympics" contest was held during June at the Shaver Creek Environmental Education Center of Pennsylvania State University. It was sponsored by the Pennsylvania Association of Conservation District Directors (PACDD).

Each team consisted of five members, an alternate member, and an adult advisor who served as coach. The teams scored points at stations set up to test their skills in the five areas. They received additional points for signs of wildlife and litter they collected in a "scavenger hunt" between stations.

Several conservation agencies helped plan and operate the test stations. The Pennsylvania Fish Commission was responsible for aquatics, the Pennsylvania Bureau of Forestry for forestry, the Soil Conservation Service for soil, the Pennsylvania Game Commission for wildlife, the Pennsylvania Bureau of State Parks for outdoor skills, and the Shaver Creek Center for the scavenger hunt.

Questions at the soil station were drawn from soil-judging guidelines of the Future Farmers of America. The students evaluated the soil in two separate pits for suitability for agricultural and urban uses.

Conservation district employees served as judges and tallied the final scores. A team from Garden Spot High School of Lancaster County won first place over a team from Fulton County. Juniata County won third place.

PACDD plans to make the contest an annual event and is encouraging more teams to participate. In 1985 it will be held again in June at the same location. As in 1984, the statewide competition will be preceded by county competitions throughout the State.

Frederick E. Bubb,
public affairs specialist, SCS, Harrisburg, PA

Outdoor Classroom Revitalized

A once-abandoned outdoor classroom now serves 9,500 students in Tangipahoa Parish, LA. The classroom covers 9 acres on the campus of Southeastern Louisiana University in Hammond and is one of the biggest environmental education facilities in the State.

The classroom opened for the 1983-84 school year after being idle for 11 years. It is used to teach students in grades 5 through 12 about soil conservation, forestry, and biology.

Classroom boundaries were established and two ponds—one to be managed and the other to be left "natural," for comparison purposes—were built in 1972. Mainly because of funding difficulties, however, the facility was left unfinished until the spring of 1983 when a united effort to finish the project was begun by the university, the Louisiana Office of Forestry, the Tangipahoa-St. Helena Soil and Water Conservation District, and the Soil Conservation Service.

Workers remade trails, cleared out heavy underbrush, and repaired bridges and walks with new lumber. They cleared classroom sites, installed benches, set up teaching exhibits, and identified and labeled plants.

By the end of June the learning center was nearly finished, and the Tangipahoa Parish School Board began incorporating it into the school program for fall. A 1-day workshop was held for all teachers of biology and the earth sciences before the school year began. The teachers were introduced to the facility and instructed on how to use it in their classes.

The opening of the classroom was hailed as a long-awaited asset for both the parish and the university. "By teaching our youth, the future land users, how to understand and manage our environment, we help conserve our natural resources for tomorrow," stated W. D. Smith, chairman of the conservation district.

During the first year, approximately 20 classes from the parish schools used the facility on a regular basis. University students assisted in the classroom as part of their teacher training.

Future plans include the installation of more benches and exhibits. There is also a possibility of other parishes using the facility.

Donny Latiolais,
district conservationist, SCS, Amite, LA



Teachers are shown how to use the outdoor classroom at Southeastern Louisiana University. Mike Materne, SCS project coordinator, Denham Springs, LA, describes tree growth rings to a group of teachers.

Vermont Students Study Rivers

Two groups of students in Vermont are learning about science by studying rivers. One group is monitoring water quality on the Ottauquechee River; the other is examining the LaPlatte River watershed.

The Ottauquechee River is being studied by chemistry students at Woodstock Union High School, Woodstock. Under the guidance of teacher Harry Goon, six students are performing qualitative and quantitative analyses of water samples obtained at more than 20 sites. The students determine the levels of fecal and total coliform contamination. Information of this type can be used to identify areas where recreational use of the river is not safe and areas where septic systems may not be working properly.

Study of the Ottauquechee was initiated in 1970 by the Ottauquechee Natural Resources Conservation District (NRCD) as a pilot project of the Clean Water Act. In 1981, students volunteered to take over the monitoring of the river and were trained on the correct procedures. The NRCD donated the testing equipment to the school and is available for assistance, but the project is now conducted primarily by Goon and his students.

The LaPlatte River watershed is being studied by students at the Shelburne Middle School as part of their science curriculum. Advanced students from the fourth through the eighth grades are learning about erosion, water quality, farming practices, computer modeling, and soil characteristics. Their study has included water sampling, a tour of the watershed to see some of the conservation practices installed, a tour of the water-testing facilities at the University of Vermont, and a slide presentation about activities of the Soil Conservation Service in the watershed.

Ann Dudas,
public affairs specialist, SCS, Winooski, VT

Environmental Educators Unite in Arizona

A motivated group of Arizonans—the Arizona Association for Learning in and about the Environment (AALE)—is pumping new life into the State's environmental education opportunities.

AALE members include elementary and high school teachers, college professors, and resource people from local, State, and Federal agencies who have environmental education responsibilities.

Since 1979, AALE has sponsored an annual statewide conservation education conference. The conference is held in October and runs from a Friday evening to Sunday to make it easier for teachers to attend. The conference is held in a different part of the State each year.

The October 1984 conference offered a variety of activities. On the first night, at a "Meeting of the Minds," members assumed the role of seven renowned conservationists including Hugh Hammond Bennett, the first chief of the Soil Conservation Service. The performers presented the views on the environment of the character they were playing and answered questions from the audience.

Over the next 2 days, conferees could attend sessions on basic ecology, physical sciences, botanical sciences, wildlife, natural resource management, and land use planning. The sessions involved participants in a variety of learning activities that they can use with students in the classroom and outdoors.

The annual business meeting at the conference concluded with an auction of donated environmental education teaching tools and other items. Forty-seven items were auctioned off, netting \$1,100 for AALE's education activities.

In addition to the annual conference, AALE sponsors environmental education workshops for teachers in their schools. The courses run from 6 to 16 hours of instruction and are presented to groups of about 20 teachers at a time.

Materials from Project WILD, a wildlife conservation program; Project Learning Tree; and other State and Federal environmental education programs are used.

AALE members with expertise in a particular area such as soil, wildlife, or land use planning design some learning activities themselves to use in the workshops. Participating in a 16-hour workshop earns teachers either credit from their school district or university credit.

AALE also sponsors an Adopt-a-School program through which the organization works with teachers and provides \$50 to be used in acquiring instructional materials in environmental education for teachers to share.

Today AALE has 243 members and is steadily growing.

Christopher Williams,
public affairs specialist, SCS, Phoenix, AZ

"SOIL—We Can't Grow Without It" Filmstrip Available

The National Wildlife Federation's (NWF) theme for this year's observance of wildlife week is "SOIL—We Can't Grow Without It." To help celebrate the week, the NWF has released a new filmstrip on soil. Using slides of wildlife in their natural habitats and picturesque landscapes, the filmstrip illustrates the importance of soil and its significance to plants, animals, and people. Further, it explains the dangers we face if we lose our topsoil and agricultural base as it is today, and it tells of the progress being made in the field of soil conservation.

To order a copy of this 15-minute filmstrip (No. 79395), send \$24.95 plus \$1.55 for shipping to the NWF, 1412 Sixteenth Street, N.W., Washington, DC 20036. The filmstrip is also available in a slide/tape program (No. 79398) and may be ordered by sending \$26.95 plus \$1.55 for shipping to the NWF. (Make checks payable to the National Wildlife Federation.) Included with each program is a 12-page educator's guide containing information on soil-appreciation activities and a bibliography of additional reading.

Conservation Tillage Poster



The Missouri Association of Soil & Water Conservation Districts and the Missouri Department of Conservation cooperated on publishing this conservation education poster, which illustrates seven reasons for practicing conservation tillage. The artist, Lonnie C. Tapia, designed the poster to show that conservation tillage controls soil erosion; is good stewardship for today's farmers; keeps soil productivity high; provides food and cover for wildlife; allows for efficient double cropping; requires smaller equipment; and ensures that future generations will inherit land that can still produce the food they will need. A teacher's guide explains the poster in more detail and includes topics for further discussion. The poster has been widely used in elementary schools and posted in many banks and libraries.

Students Get Credit for SCS Work

Two students have received credit at the University of Kansas by helping the Soil Conservation Service. The two served as volunteers for the Douglas County Conservation District during the 1983-84 school year.

One student received credit through an independent study course in conservation education. The second used her volunteer experience as the basis for a class term paper.

For her independent study, Kathy Arnold developed a program for National Wildlife Week and presented it at four elementary schools in the county. The program consisted of a slide show featuring Kansas wildlife and an animal habitat game in which students participated.

Arnold also created a cartoon character, "Sammy Soil Particle," and wrote the text for a comic book explaining 11 conservation practices used in Douglas

County. The book, which is designed for fifth and sixth grade students, complements a slide show and scale model farm used in the district's education program.

District officials worked with Arnold and school authorities to develop a syllabus for the independent study that met degree requirements of the department of curriculum and instruction. "I think the program worked very well," said Marilyn McCleary, a teaching assistant in the department. "I particularly liked it because no money changed hands, yet both parties benefited. I am confident the projects will help Kathy with her future teaching assignments."

The second student was Kara Brown, a geography major. Brown helped write conservation plans and determined soil loss using the Universal Soil Loss Equation. She also helped with stakeout, checkout, and design of ponds, diversions, and underground outlet terraces.

Back at the university, Brown used her practical field experience and acquired knowledge in a soils geography class. She cited the information gained through SCS and the district as a reference source for a term paper.

"It was an excellent learning experience, and I thoroughly enjoyed it," Brown said. "My grandfather was a district conservationist in Decatur County, and I have a keen interest in conservation."

Both women were graduated in the spring of 1984.

Michael Watkins,
district conservationist, SCS, Lawrence, KS

Mentally Handicapped Trained for Farming

A 9-week course in agriculture and conservation is being offered to mentally handicapped students in Granville County, NC. It provides training for students who, for the most part, will eventually be employed in the local farm economy.

The course is offered each fall and spring as part of a vocational education program at the Mary Potter School, a public school in Oxford. Class size averages about 30 students, who range from 14 to 21 years of age and are considered either educable or trainable.

"Since Granville County is primarily rural and has a large agri-business," said Jan Harvey, teacher of the course, "many of these students will find jobs on farms or with farm-related businesses."

The course was developed in 1983 by Harvey and the Granville Soil and Water Conservation District (SWCD), the Agricultural Extension Service, and the Soil Conservation Service. It is called Project ACC (for Agriculture and Conservation in the Classroom) and includes classroom sessions, field trips, and class projects that vary according to the season.

Classroom sessions are used to familiarize the students with conservation work and general farming operations. Conservation practices are defined and explained in terms of how they help the farmer. The different types of farming operations in the area—beef, dairy, swine, and tobacco—are described. Proper woodland management techniques are also discussed, and the students are shown a set of slides on "Forest Management in Granville County."

"This has been an excellent opportunity for the students to learn the difference between such things as a terrace and a grassed waterway or the differences in the breeds of dairy and beef cattle," said Harvey.

Field trips are conducted to give the students a firsthand view of what is covered in the classroom. On one field trip the students visited a feeder calf sale, a farm that has many different conservation



Kara Brown, sighting through a level, used field experience gained through volunteer work for SCS in her classes at the University of Kansas.



practices installed, a managed woodlot, and a sawmill. On another they visited a tobacco research farm, a tobacco warehouse auction, and a tobacco processing firm. On a third trip the students visited a swine operation and a dairy operation.

"Seeing in the field what we have discussed in the classroom helps reinforce it for the students," said Harvey. "It is very important that they get the opportunity to actually see what we've talked about in class. These field trips not only allow the students to be on the farm and see what is involved in producing a product on the farm, but they also allow them to see how some of the products are sold and processed."

For class projects, the students have planted shrubs and flowers to beautify the school campus and to reduce erosion in other areas. They have also made conservation posters in a contest sponsored by the Granville SWCD. The posters were displayed at a local library, and winners of the contest were presented with trophies at a cookout following a field trip. A vegetable garden is planned for future classes.

Boyce L. Harvey,
district conservationist, SCS, Oxford, NC

Zoo Exhibit Shows How to Invite Birds to Your Home

What was once an area of poor habitat in a corner of Washington Park Zoo in Portland, OR, is now a favorite spot for wild birds. The project was designed to give zoo visitors ideas for attracting birds to their own backyards. It provides a visual, growing example of the kinds of plants readily available in the Northwest for home landscaping, which are attractive to wild birds. Plants include blueberries, birch, dogwood, firethorn, cedar, English ivy, Oregon grape, and cotoneaster. Plants in the area are identified by numbered signs keyed to a central display sign containing plant names, growth characteristics, and value for birds. An acknowledgment sign lists the

many contributors to the project.

Under the leadership of the West Multnomah Soil and Water Conservation District and the Soil Conservation Service, this community project involved 28 retail and wholesale businesses. Others helping were the Oregon Department of Fish and Wildlife, Portland Audubon Society, Oregon Association of Nurserymen, and the zoo staff.

Labor and materials, at an estimated value of nearly \$25,000, were all donated. Items included landscape design by a local nursery, plant materials and labor, a shallow pond, underground sprinkler irrigation system, bird feeders, and signs. A local grocery chain even printed grocery bags with an invitation to the public to visit the zoo exhibit.

But the birds don't need an invitation. Visitors can catch a glimpse of juncos, scrub jays, robins, chickadees, Steller's jays, and occasionally finches, warblers, and evening grosbeaks. Native wild birds share the free lunch with resident birds, such as peacocks or guinea hens.

The plan for the exhibit area was based on the SCS publication "Invite Birds to Your Home—Conservation Plantings for the Northwest." The publication is made available to zoogoers at the entrance to the zoo. SCS District Conservationist Lloyd Pierre and Soil Conservationist Jan Jinings, Portland, coordinated the project with help from the SCS West National Technical Center and the SCS State office in Portland.

Shirley Boothby,
public affairs specialist, SCS, Portland, OR

50th Observed at Children's Museum

A slide show at a children's museum will become part of North Carolina's 1985 observance of the 50th anniversary of the Soil Conservation Service. The show was prepared by SCS and has been presented at Discovery Place in Charlotte since July 1984.

The show, which is entitled "Water and Soil," provides information on erosion, conservation efforts, and the State's role in the history of soil conservation. It is 16 minutes long and uses 310 slides that are projected onto two screens on a domed ceiling.

The show is part of the State's "Soil and Water '84" campaign. Its run has been extended into 1985, however, enabling it to be incorporated into the anniversary observance of SCS. This dual purpose is appropriate, according to Andy Smith, SCS public affairs specialist, Raleigh, because much of the material in the slide show deals with the history of SCS.

Smith said that the museum is likely to run the show at least through the winter. He predicted that more than 75,000 persons—mostly children—will see it.

Initial arrangements for presenting a slide show at the museum were made by the Mecklenburg County Soil and Water Conservation District. The State office of SCS prepared the presentation, and the museum provides the projection equipment.

Moving?

Send present mailing label and new address including zip code to:

U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 2890, Room 6117-S
Washington, D.C. 20013-2890

Official Business
Penalty for private use, \$300

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New Publications

Agricultural Ecosystems: Unifying Concepts

Edited by Richard Lowrance, Benjamin R. Stinner, and Garfield J. House

This is a collection of scientific papers about ecology and agriculture. It presents concepts useful to both fields.

The 13 chapters in this volume are the result of a 1982 symposium of the Ecological Society of America. This symposium was held to bring together expertise on aspects of ecology that relate to agriculture.

The authors, who are ecologists and agronomists, apply the models, concepts, methods of analysis, and data of ecology to agricultural systems. Subjects include the modeling of agroecosystems, economics, nutrient dynamics, energy flow, and soil erosion.

Agricultural Ecosystems is available for \$39.95 from John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158.

The Resourceful Earth: A Response to "Global 2000"

Edited by Julian L. Simon and Herman Kahn

The 1980 *Global 2000 Report to the President* predicted ominous changes in the world's population, natural resources, and environment by the end of the century. This work challenges those predictions.

The editors and various authors maintain that the world in 2000 will be less crowded, less polluted, more ecologically stable, and less vulnerable to resource-supply disruption than

it is today. They make the case that nature, if approached with initiative and ingenuity, is more resilient than imagined and raw materials are becoming less important to economic development.

The Resourceful Earth was a project supported by the Heritage Foundation in Washington, DC. The 585-page book is available for \$19.95 from Basil Blackwell Inc., 432 Park Avenue South, Suite 1505, New York, NY 10016.

Erosion and Sediment Yield: Some Methods of Measurement and Modelling

Edited by R. F. Hadley and D. E. Walling

This book contributes to understanding the linkage between soil erosion and sediment transport by broadening the observational data base and the knowledge of the processes involved. The ultimate goal is a model based on physical processes that will predict sediment yields.

The editors have assembled eight chapters by different authors on the principal methods of measuring erosion and sediment yields in a variety of environments and land uses. Techniques are described for using data in the development of regression equations and models designed to improve prediction and estimation capabilities.

Erosion and Sediment Yield is a contribution of the International Commission on Continental Erosion of the International Association of Hydrological Sciences. Copies can be ordered for \$27 (\$18 paperback) from Geo Books, Regency House, 34 Duke Street, Norwich NR3 3AP, England.

For Love of the Land

by R. Neil Sampson

For Love of the Land, a history of the National Association of Conservation Districts (NACD), is being issued this month as part of the celebration of the 50th anniversary of the soil and water conservation movement.

In the foreword, Milton E. "Bud" Mekelburg, president of NACD, says, "This book should help every district official and conservation professional grasp a sense of their own place in the 50-year history of the movement. It should also help every citizen interested in the conservation of our resources to locate what has been done and what yet remains to be done. It belongs on the bookshelf of all 17,000 district officials, of every serious conservationist, every friend of conservation districts, every library across the country—especially the libraries of schools, colleges, and universities."

For Love of the Land is 360 pages, hard cover, and includes a 22-page chronology of the development of NACD. Its index contains more than 1,200 listings, including nearly 1,000 people.

The book costs \$14.95 and can be ordered from the NACD Service Department, 408 East Main St., P.O. Box 855, League City, TX 77573.

Future Agricultural Technology and Resource Conservation

Edited by Burton C. English, James A. Maetzold, Brian R. Holding, and Earl O. Heady

This publication is the proceedings for the symposium by the same name held in December 1982. The symposium brought together more than 200 of the

Nation's leading farmers, scientists, agricultural business people, extension workers, and other specialists. They were to combine their technical skills and expertise to project what might be the state of America's agriculture in the years 2000 and 2030.

The publication contains all the papers and summaries from the symposium's nine work groups: soil management technology, tillage, and crop rotation practices; land use; water resource technology and management; adoption and diffusion of soil and water conservation practices; crop technology; crop nutrition technology; pest management technology; machinery technology; and red meat, dairy, poultry, and fish technology.

Also included are keynote addresses by three distinguished leaders in agriculture, and lists of work group participants, keynote speakers, and conference moderators.

Copies of this 604-page publication are available for \$26.65 from Iowa State University Press, South State Avenue, Ames, IA 50010.